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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,401	05/09/2001	Louis B. Rosenberg	IMM005B	5620

7590 12/17/2002

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EXAMINER

NGUYEN, CHANH DUY

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 12/17/2002

19

Please find below and/or attached an Office communication concerning this application or proceeding.

B

Office Action Summary

Application No.

09/852,401

Applicant(s)

ROSENBERG, LOUIS B.

Examiner

Chanh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 54-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 54-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15, 18. 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 19, 2002 has been entered.

Information Disclosure Statement

2. The references listed on the Information Disclosure Statement filed on August 19, 2002 and October 21, 2002 have been considered by examiner; see attached PTO-1449.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 44-48 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus et al (U.S. Patent No. 5,769,640; hereinafter simply referred to as Jacobus) in view Adelstein (A Virtual Environment System For The Study Of Human Arm Tremor).

As to claim 44, Jacobus discloses an apparatus (mechanism 48 or 134, 140) for interface a user with a computer (44, 46) providing a laparoscopic surgical simulation (surgical instrument 260); see column 3, lines 44-47. For example, Jacobus teaches a user object (134) simulating at least a portion of a medical instrument used in a laparoscopic surgical procedure, a gimbal mechanism (136) receiving the user object (134) and allowing the user object (134) to be manipulated in first, second and third rotary degrees of freedom and in first translation degree of freedom; see column 7, lines 20-25. Jacobus teaches a sensing system (142, 144, 146, 148) coupled to the gimbal mechanism (136) to detect manipulation of the user object (134) in the first, second and third rotational degrees of freedom (roll, pitch and yaw) and in the first translational degree of freedom (1 linear position) wherein the sensing system (142, 144, 146, 148) providing sensor input related to the manipulation in the first, second, and third rotational degrees of freedom and the first translation degree of freedom to the computer to control a virtual reality image in the laparoscopic surgical simulation displayed on a display device by the computer; see column 7, lines 23-56.

Jacobus does not detail the apparatus (48) having a closed loop five member linkage.

Adelstein teaches five link closed chain joystick mechanism (see figure 4.3, page 63).

Adelstein teaches the five link closed chain joystick mechanism, Figure 4.3 which is exactly the same as applicant's disclosed device shown in Figure 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the joystick of Adelstein to the joystick of Jacobus so that both friction and backlash in the mechanism could be decreased, enhancing its

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backdriveability, while still maintaining the joystick kinematics for the coupling between the human and the loading actuators; see page 61, second paragraph of Adelstein.

As to claim 51, this claim differs from claim 44 only in that the limitation actuator is additionally recited. Jacobus clearly teaches actuator (142, 144, 146, 148) coupled to the gimbal mechanism (136); see column 7, line 15 through column 8, line 8..

As to claim 45, the claimed a handle sensor is so broad that it reads on the force sensors (142-148) as taught by Jacobus.

As to claims 46-47, both Jacobus and Adelstein teaches the handle including relatively pivotable portions. For example, handle of Adelstein can be tilted, rotated, and handle coupled to the sensor.

As to claim 48, Adelstein clearly teaches a well-known five link closed chain joystick mechanism; see column 9, lines 57-58.

As to claims 52-53, Jacobus clearly teaches the actuator (142, 144, 146, 148) is a motor.

As to claim 54, Jacobus teaches actuator (142-148) which perform all the functions of pitch, roll, yaw and vertical; see column 7, lines 15-35. This reads on the claimed limitations.

5. Claims 57-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus in view of Adelstein , and further in view of Noll (U.S. Patent No. 3,919,691).

As to claim 57, note the discussion of Jacobus and Adelstein above, this claim differs from claim 51 above only in the limitation cable and pulley is additionally recited.

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Noll teaches an actuator (18-20) coupled to the gimbal mechanism (10) through the cable (17) and pulley ; see column 3, lines 49-54. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the cable and pulley as taught by Noll to the gimbal mechanism of Jacobus as modified by Adelstein because the pulley and cable are relatively less expensive than metal rod, bond as taught by Jacobus.

As to claims 58-63, all the limitation recited in claims 58-62 are met by Jacobus, Adelstein. For example, Noll clearly teaches cable pulley to provide a force to the user in the first translational degree of freedom as recited in claim 58. The claimed five member linkage recited in claim 59-60 is broad enough to read on the connection between elements in the gimbal mechanism (10) of Noll.

6. Claims 49-50 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus in view of Adelstein as applied to claim 44 above, and further in view of Tuason (U.S. Patent No. 5,403,191).

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As to claims 49-50 and 55-56, note the discussion of Jacobus and Adelstein above, Jacobus and Adelstein do not mention a barrier and a trocar. Tuason teaches trocar (24) and barrier (17) . It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the trocar and barrier as taught by Tuason to the laparoscopic surgical simulation of Jacobus as modified by Adelstein so as to allow a surgeon to perform the simulation resemble real life operation; see column 6, lines 3-11 of Tuason.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chanh Nguyen whose telephone number is (703) 308-6603.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703)872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (receptionist).

CN

C. Nguyen

December 11, 2002

Chanh Nguyen

**CHANH NGUYEN
PRIMARY EXAMINER**